WHAT IS CLAIMED IS:

1. A method of automated speaker identification, comprising:

receiving a sample speech input signal from a sample handset;

deriving a cepstral covariance sample matrix from said first sample speech signal;

calculating, with a distance metric, all distances between said sample matrix and one or more cepstral covariance signature matrices;

determining if the smallest of said distances is below a predetermined threshold value; and

wherein said distance metric is selected from

,

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2,$$

fusion derivatives thereof, and

fusion derivatives thereof with $d_1(S,\Sigma) = \frac{A}{H} - 1$.

2. The method of claim 1 further comprising:

identifying said sample handset;

identifying a training handset used to derive each said signature matrix;

wherein for each said signature matrix, an adjusted sample matrix is derived by adding to said sample matrix a distortion matrix comprising distortion information for said training handset used to derive said signature matrix; and

wherein for each signature matrix, an adjusted signature matrix is derived by adding to each said signature matrix a distortion matrix comprising distortion information for said sample handset.

3. The method of claim 2, wherein the step of identifying said sample handset further comprises:

calculating, with a distance metric, all distances between said sample matrix and one or more cepstral covariance handset matrices, wherein each said handset matrix is derived from a plurality of speech signals taken from different speakers through the same handset; and

determining if the smallest of said distances is below a predetermined threshold value.

4. The method of claim 3 wherein said distance metric satisfies symmetry and positivity conditions.

5. The method of claim 4, wherein said distance metric is selected from

$$d_1(S,\Sigma) = \frac{A}{H} - 1,$$

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2, \text{ and}$$

fusion derivatives thereof.

6. The method of claim 2, wherein the step of identifying said training handset for each said signature matrix further comprises:

calculating, with a distance metric, all distances between said signature matrix and one or more cepstral covariance handset matrices, wherein each said handset matrix is derived from a plurality of speech signals taken from different speakers through the same handset; and

determining if the smallest of said distances is below a predetermined threshold value.

7. The method of claim 6 wherein said distance metric satisfies symmetry and positivity conditions.

8. The method of claim 7, wherein said distance metric is selected from

$$d_1(S,\Sigma) = \frac{A}{H} - 1,$$

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2$$, and

fusion derivatives thereof.

9. A method of automated speaker identification, comprising:

receiving a sample speech input signal from a sample handset;

deriving a cepstral covariance sample matrix from said first sample speech signal;

calculating, with a distance metric, all distances between an adjusted sample matrix and one or more adjusted cepstral covariance signature matrices, each said signature matrix derived from training speech signals input from a training handset;

determining if the smallest of said distances is below a predetermined threshold value;

wherein for each said signature matrix, said adjusted sample matrix is derived by adding to said sample matrix a distortion matrix comprising distortion information for said training handset used to derive said signature matrix; and

wherein each said adjusted signature matrix is derived by adding to each said signature matrix a distortion matrix comprising distortion information for said sample handset.

10. The method of claim 9, wherein said distance metric satisfies symmetry and positivity conditions.

11. The method of claim 10, wherein said distance metric is selected from

$$d_1(S,\Sigma) = \frac{A}{H} - 1,$$

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2, \text{ and}$$

fusion derivatives thereof.

12. The method of claim 9, wherein said sample handset is identified by a method comprising:

calculating, with a distance metric, all distances between said sample matrix and one or more cepstral covariance handset matrices, wherein each said handset matrix is derived from a plurality of speech signals taken from different speakers through the same handset; and

determining if the smallest of said distances is below a predetermined threshold value.

13. The method of claim 12, wherein said distance metric satisfies symmetry and positivity conditions.

14. The method of claim 13, wherein said distance metric is selected from

$$d_1(S,\Sigma) = \frac{A}{H} - 1,$$

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4$$,

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1$$,

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1$$,

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2$$, and

fusion derivatives thereof.

15. The method of claim 9, wherein, for each said signature matrix, said training handset is identified by a method comprising:

calculating, with a distance metric, all distances between said signature matrix and one or more cepstral covariance handset matrices, wherein each said handset matrix is derived from a plurality of speech signals taken from different speakers through the same handset; and

determining if the smallest of said distances is below a predetermined threshold value.

16. The method of claim 15, wherein said distance metric satisfies symmetry and positivity conditions.

17. The method of claim 16, wherein said distance metric is selected from

$$d_1(S,\Sigma) = \frac{A}{H} - 1,$$

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2$$, and

fusion derivatives thereof.

18. A program storage device, readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for automated speaker identification, said method steps comprising:

receiving a sample speech input signal from a sample handset;

deriving a cepstral covariance sample matrix from said first sample speech signal;

calculating, with a distance metric, all distances between said sample matrix and one or more cepstral covariance signature matrices;

determining if the smallest of said distances is below a predetermined threshold value; and

wherein said distance metric is selected from

,

$$d_5(S,\Sigma) = A + \frac{1}{H} - 2,$$

$$d_6(S,\Sigma) = (A + \frac{1}{H})(G + \frac{1}{G}) - 4,$$

$$d_7(S,\Sigma) = \frac{A}{2H}(G + \frac{1}{G}) - 1,$$

$$d_8(S,\Sigma) = \frac{(A + \frac{1}{H})}{(G + \frac{1}{G})} - 1,$$

$$d_9(S,\Sigma) = \frac{A}{G} + \frac{G}{H} - 2,$$

fusion derivatives thereof, and

fusion derivatives thereof with $d_1(S,\Sigma) = \frac{A}{H} - 1$.

19. A program storage device, readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for automated speaker identification, said method steps comprising:

receiving a sample speech input signal from a sample handset;

deriving a cepstral covariance sample matrix from said first sample speech signal;

calculating, with a distance metric, all distances between an adjusted sample matrix and one or more adjusted cepstral covariance signature matrices,

each said signature matrix derived from training speech signals input from a training handset;

determining if the smallest of said distances is below a predetermined threshold value;

wherein for each said signature matrix, said adjusted sample matrix is derived by adding to said sample matrix a distortion matrix comprising distortion information for said training handset used to derive said signature matrix; and

wherein each said adjusted signature matrix is derived by adding to each said signature matrix a distortion matrix comprising distortion information for said sample handset.